No. 729,954. PATENTED JUNE 2, 1903.

M. A. MILLS.

REMOVABLE BED PLATE FOR BEATING ENGINES.

APPLICATION FILED MAR. 4, 1903.

NO MODEL.

Fig. 1.

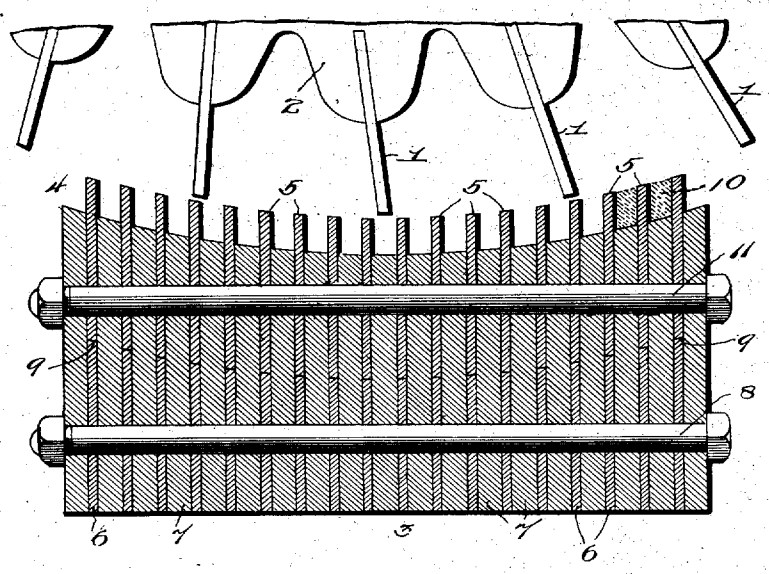
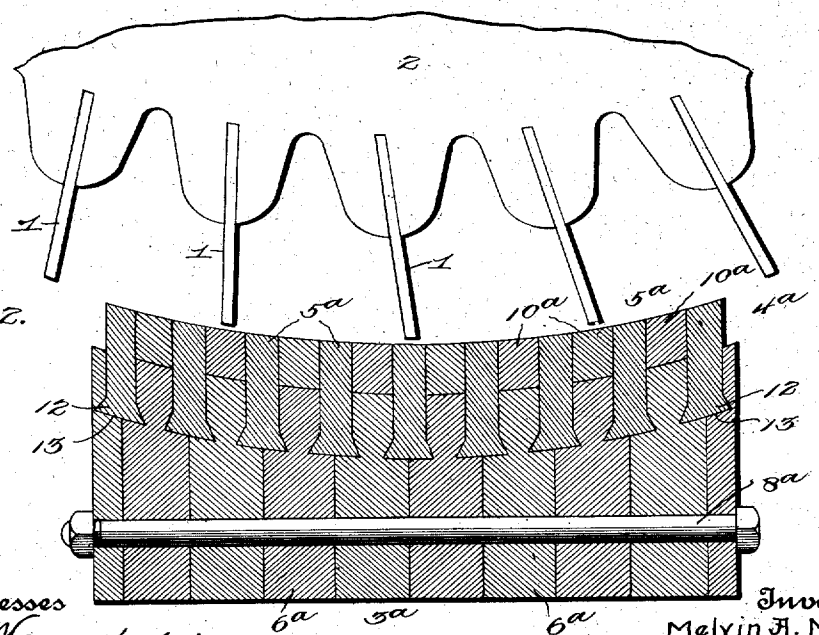


Fig. 2.



Witnesses
G. L. Moorhead
G. S. Roy.

Inventor
Melvin A. Mills:
by D. P. Wolhaupter.
Attorney

No. 729,954. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

MELVIN A. MILLS, OF LAWRENCE, MASSACHUSETTS.

REMOVABLE BED-PLATE FOR BEATING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 729,954, dated June 2, 1903.

Application filed March 4, 1903. Serial No. 146,204. (No model.)

To all whom it may concern:

Be it known that I, MELVIN A. MILLS, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Renewable Bed-Plates for Beating-Engines, of which the following is a specification.

This invention relates to beating-engines for pulp in paper-making, and has special reference to an improvement in the bed-plates with which coöperate the knives or blades of the beater-roll.

To this end the invention contemplates a simple and practical construction of bed-plate possessing all of the requisites of strength and rigidity of parts to insure a proper beating action, while at the same time providing a renewable character of plate wherein only the active or working elements which coöperate with the blades of the beater-roll need to be replaced as they wear down, thus preserving the general body of the plate for indefinite use, and consequently obviating the great expense attendant upon the maintenance of a beating-engine on account of the necessity of throwing away the entire bed-plate when the blades thereof have been worn down only a short distance.

A further object of the invention is to provide a renewable form of bed-plate of such construction as to admit of the employment of working blades or knives of tool-steel at even a less cost than the ordinary cost of the usual bed-plates.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described, illustrated, and claimed.

The essential feature of the invention involved in the provision of a renewable blade-section for the plate without changing or affecting the general body or base of the plate is necessarily susceptible to some modification without departing from the scope of the invention; but preferred embodiments thereof are shown in the accompanying drawings, in which—

Figure 1 is a sectional view of a renewable plate constructed in accordance with this invention. Fig. 2 is a similar view of a modified form of the plate.

Like reference-numerals designate corresponding parts throughout both figures of the drawings.

In carrying out the invention the bed-plate is constructed to embody what may be properly characterized as a permanent base-section and a renewable blade-section, the latter being essentially made up of the bars or plates constituting the working blades with which coöperate the blades or knives 1 of the ordinary beater-roll 2. In all aspects of the invention this idea is preserved in the construction of the bed-plate, and, referring in the first place to the preferred construction of bed-plate, (shown in Fig. 1 of the drawings,) the numeral 3 designates the permanent base-section thereof, and the numeral 4 designates the renewable blade-section, the latter essentially consisting of a plurality of bars 5, constituting the working blades. In the construction referred to the base-section may be and preferably is economically formed by planing down an old-type worn bed-plate, thereby utilizing the blades 6 as the individual supporting elements for the working blades 5 of the completed structure. Hence in the formation of a bed-plate, as shown in Fig. 1 of the drawings, the permanent base-section 3 is of a laminated formation and essentially consists of a compactly-arranged series of alternating supporting-bars 6 and spacing-fillers 7, held in their assembled relation through the medium of a tie-bolt 8, passing through the entire series. The supporting-bars 6 are preferably formed, as stated, by the planing down of the blades or bars of an old-type bed-plate, and the upper edges 9 of which bars are planed in a common circle concentric to the beater-roll 2, whereby there may be employed working blades 5 of uniform width, which is a matter of considerable importance in the economical reconstruction of a bed-plate according to the present invention. Each of the bars 6 constitutes an individual blade-supporting element for one of the working blades 5, which are placed directly thereon in the vertical plane thereof, as plainly seen from Fig. 1 of the drawings, and after the proper planing down of the bars

6 to adapt them for individually supporting the blades 5 the spacing-fillers 7 serve to maintain the proper separation between not only the bars 6, but also the blades 5, supported thereon, said spacing-fillers 7 being of wood or metal extending to a point usually short of the upper working edges of the blades. In practice the intervals between the blades 5 contiguous to their working-edges may be filled by working fillers 10, of wood, as indicated by dotted lines in Fig. 1, so that the said working fillers of wood simply wear down with the steels or blades in the brushing action.

If desired, in the construction referred to an auxiliary strengthening tie-bolt 11 may be passed through the entire group of blades 5 and the intervening fillers 6.

Many modifications of the structure described may be resorted to, one of which is illustrated in Fig. 2 of the drawings. In the latter construction the permanent base-section (designated by the numeral 3^a) consists of a series of supporting-bars 6^a, arranged in contacting relation and held together by a common tie-bolt 8^a. The renewable blade-section 4^a consists of a series of steel bars 5^a, constituting blades and provided with dovetailed or ribbed feet 12, fitting in correspondingly-shaped seats 13, provided within and between the adjoining sides of the bars 6, contiguous to the upper end of the latter. Between the projecting portions of the bars or blades 5 are interposed the working wood fillers 10^a, performing the functions already indicated.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A bed-plate of the class described comprising a permanent base-section embodying a plurality of blade-supports, and a renewable blade-section embodying a plurality of working blades having a rigid mounting on said blade-supports.

2. A bed-plate of the class described comprising a permanent base-section embodying a plurality of closely-assembled individual blade-supports, and a renewable blade-section embodying a plurality of working blades each of which has a rigid mounting on one of said blade-supports.

3. A bed-plate of the class described comprising a permanent base-section of a laminated formation and embodying a series of alternating supporting-bars and spacing-fillers extending above the bars, the upper edges of the supporting-bars being planed in a common circle concentric to the beater-roll, and a renewable blade-section embodying a plurality of working blades alternating with the spacing-fillers and each having an individual rigid support on one of the supporting-bars.

In testimony whereof I affix my signature in presence of two witnesses.

MELVIN A. MILLS.

Witnesses:
DELIA LYONS,
PAUL R. CLAY.

Correction in Letters Patent No. 729,954.

It is hereby certified that in Letters Patent No. 729,954, granted June 2, 1903, upon the application of Melvin A. Mills, of Lawrence, Massachusetts, the title of the invention was erroneously written and printed "Removable Bed-Plate for Beating-Engines," whereas the said title should have been written and printed *Renewable Bed-Plate for Beating-Engines;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of June, A. D., 1903.

[SEAL.]

E. B. MOORE,
Acting Commissioner of Patents.

6 to adapt them for individually supporting the blades 5 the spacing-fillers 7 serve to maintain the proper separation between not only the bars 6, but also the blades 5, supported thereon, said spacing-fillers 7 being of wood or metal extending to a point usually short of the upper working edges of the blades. In practice the intervals between the blades 5 contiguous to their working-edges may be filled by working fillers 10, of wood, as indicated by dotted lines in Fig. 1, so that the said working fillers of wood simply wear down with the steels or blades in the brushing action.

If desired, in the construction referred to an auxiliary strengthening tie-bolt 11 may be passed through the entire group of blades 5 and the intervening fillers 6.

Many modifications of the structure described may be resorted to, one of which is illustrated in Fig. 2 of the drawings. In the latter construction the permanent base-section (designated by the numeral 3^a) consists of a series of supporting-bars 6^a, arranged in contacting relation and held together by a common tie-bolt 8^a. The renewable blade-section 4^a consists of a series of steel bars 5^a, constituting blades and provided with dovetailed or ribbed feet 12, fitting in correspondingly-shaped seats 13, provided within and between the adjoining sides of the bars 6, contiguous to the upper end of the latter. Between the projecting portions of the bars or blades 5 are interposed the working wood fillers 10^a, performing the functions already indicated.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A bed-plate of the class described comprising a permanent base-section embodying a plurality of blade-supports, and a renewable blade-section embodying a plurality of working blades having a rigid mounting on said blade-supports.

2. A bed-plate of the class described comprising a permanent base-section embodying a plurality of closely-assembled individual blade-supports, and a renewable blade-section embodying a plurality of working blades each of which has a rigid mounting on one of said blade-supports.

3. A bed-plate of the class described comprising a permanent base-section of a laminated formation and embodying a series of alternating supporting-bars and spacing-fillers extending above the bars, the upper edges of the supporting-bars being planed in a common circle concentric to the beater-roll, and a renewable blade-section embodying a plurality of working blades alternating with the spacing-fillers and each having an individual rigid support on one of the supporting-bars.

In testimony whereof I affix my signature in presence of two witnesses.

MELVIN A. MILLS.

Witnesses:
DELIA LYONS,
PAUL R. CLAY.

Correction in Letters Patent No. 729,954.

It is hereby certified that in Letters Patent No. 729,954, granted June 2, 1903, upon the application of Melvin A. Mills, of Lawrence, Massachusetts, the title of the invention was erroneously written and printed "Removable Bed-Plate for Beating-Engines," whereas the said title should have been written and printed *Renewable Bed-Plate for Beating-Engines;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of June, A. D., 1903.

[SEAL.]

E. B. MOORE,
Acting Commissioner of Patents.

Correction in Letters Patent No. 729,9

It is hereby certified that in Letters Patent No. 729,954, granted June 2, 1903, upon the application of Melvin A. Mills, of Lawrence, Massachusetts, the title of the invention was erroneously written and printed "Removable Bed-Plate for Beating-Engines," whereas the said title should have been written and printed *Renewable Bed-Plate for Beating-Engines;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of June, A. D., 1903.

[SEAL.]

E. B. MOORE,

Acting Commissioner of Patents.